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ABSTRACT

Although those psychomotor procedures that were the basic components of occupations of the industrial age still need to be taught, there is a growing need to teach the cognitive behaviors and affective behaviors associated with information processing and service-related occupations. The techniques that have worked well to teach psychomotor behaviors can and should be modified to embrace the teaching of occupationally related cognitive and affective behaviors. Solid competency-based procedures can be adapted to teach affective behaviors. First, job-related affective behaviors that are required for a person to succeed in the occupation can be identified through a job analysis. Second, the specific content that an instructor must teach for a learner to acquire those behaviors must be identified through behavior detailing. Third, how the behavior will be taught must be planned. The Performance-Based Instructional Design System contains a lesson structuring (planning) system that is equally applicable to the psychomotor and affective behaviors. (This system is explained and sample charts, checklists and other illustrative materials are included.) (YLB)

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Incorporating Affective Skills Into Performance-Based Vocational Education and Industrial Training

ED 290855

Introduction

It is generally accepted that more people lose their jobs due to attitudinal factors than due to a lack of the skills that they are expected to perform on the job. Even though we have known this for many years, most vocational educators have avoided instruction related to affective behaviors. This avoidance has been due to lack of understanding of the increasing importance of the role of job-related affective behaviors in job success, and the availability of instructional planning and delivery techniques which instructors can use to identify and teach affective behaviors.

The Evolution of Current Instructional Development Systems in Vocational Education

The lack of instructional planning and delivery techniques to teach affective behaviors is the result of the historical development of vocational instruction and industrial training. The institution of "vocational education" in the United States evolved as a result of the significant increase in demand for skilled and semi-skilled workers as society moved from the agricultural to the industrial age. Workers were needed to operate the machines and to manipulate the tools and objects of industrial america. As a result, the focal point for designing

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instruction to prepare people for these occupations was the visible, psychomotor aspects of occupations.

As the demand for these workers increased, it also became apparent that the typical systems for preparing skilled workers of the time, such as apprenticeship, were too time consuming and slow to produce the numbers workers needed. With the need to train large numbers, people charged with training searched for effective techniques to plan and deliver instruction. Little was known about how to effectively train people in large numbers. Most occupations were treated as an art where the artisan taught one or two people to carry on the occupation. Training took place over an extended period of time on a one-to-one basis and efficiency was not extremely important. When faced with the problem of training large numbers, the process of doing so was somewhat of a mystery.

One of the few people who had written about the process of instruction up until that time was Johann Friedrich Herbart (1776-1841). Industrial trainers turned to his writing for guidance, therefore, much of industrial training and vocational instruction was founded upon his theory of teaching and learning. Prosser and Quigley (1957) indicate that "where instruction is (was) called for, the vocational school has very generally used the standard Herbartian Lesson..."

Herbart is generally recognized as the first person to formally address the development of education as a science. He developed a logical, comprehensive, and internally consistent theory about how people learned. Although his primary writings about education were completed between 1833 and 1836 in Germany,

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they were translated into English in 1898 in the book The Application of Psychology to the Science of Education (Herbart, 1898).

The steps, in what vocational educators referred to as the Herbartian lesson, were originally developed by Charles R. Allen (Allen, 1919). Allen was one of the first writers who specifically addressed the process of teaching vocational skills in industry and the schools. The procedures which were outlined in his initial text became the basic premises under which skill training has been done within the United States. He suggested that lessons be prepared to teach units of instruction with very clear purposes. Allen addressed the issue of what to teach in his discussion of "the classification of what must be taught." He suggested that the content must be classified in terms of jobs. He indicated that a job meant anything that a man (person) is paid to do. The jobs which Allen was preparing instructors to teach were the skilled jobs of the early 1900s. The content to be taught was essentially the procedural aspects of operating machines, using tools, and manipulating objects; and related auxiliary knowledge or information related to carrying out the procedure.

In 1942, Verne C. Fryklund's wrote the book, Trade and Job Analysis, which refined and developed more specific procedures for analyzing jobs to determine the content to be taught. He recognized the fact that many times jobs were too complex to be taught without breaking them down further. He indicated that jobs had to be broken down into elements in order for them to be

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taught. He defined job elements as "operations and information topics." Operations were specified as "skills, processes, and job operations." Information topics were essentially the same as what Allen called auxiliary knowledge or information. Fryklund's trade and job analysis approach to analyzing vocational content was the accepted procedure for many years.

During the early 1960s a new generation of curriculum procedures began to evolve, the Systems Approach. The systems approach had been used in product engineering for some time. In 1972 Coit Butler wrote a book entitled Instructional Systems Development for Vocational and Technical Training in which he indicated that by using the systems approach, it was possible to build a curriculum based on an analysis of learner performance data, and to validate the curriculum against the performance data. He drew heavily upon his ..."more than 20 years in pioneering research and development in instructional systems technology, with the United States Air Force, the American Institutes for Research, and other organizations." (Butler, 1972, p. iii)

At about the same time, July, 1973, The United States Department of the Air Force published the original Handbook for Designers of Instructional Systems. It contained many of the same elements as those in Butler's book. The handbook was revised and published again in 1978, and the system became know as the ISD (Instructional Design) model (Dept. of the Air Force, 1978).

Both Butler's book and the "handbook" were developed from a set of literature other than vocational education literature.

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They were based primarily on work being done by people prepared as instructional designers and learning theorists at the American Institutes for Research in Pittsburgh (Briggs, 1970; Briggs et al., 1966; Klaus, 1971; Butler, 1968) and within the United States Air Force (Butler, 1964; AFM 50-2, 1970; Miller, 1953; Rhode et al., 1970).

In 1965, Benjamin S. Bloom and Robert M. Gagne' each came out with books that dealt with a major step of the systems approach - that of specifying performance objectives. The major impact of both books was that they presented classifications that could be used to describe human behaviors as performances which could form the basis for performance objectives. Bloom's book, Taxonomy of educational Objectives: The Classification of Educational Goals, Handbook I: Cognitive Domain, presented the classification of human behaviors in terms of cognitive, affective and psychomotor objectives. (Bloom, 1956) Gagne's book entitled, The Conditions of Learning, classified human behaviors as a hierarchy of learned capabilities. He suggested that learning could be focused on developing five different capabilities of humans: 1) intellectual skills, 2) cognitive strategies, 3) verbal information, 4) motor skill, and 5) attitude. Educators now had classification systems to describe human behavior in terms of performance which could be used to focus instruction (Gagne', 1965).

The people who wrote about applying the systems approach to education concentrated on defining the problem (educational objectives) and evaluating whether the problem had been solved (criterion measures). However, little was presented on how to

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teach learners to attain the objectives. Gagne' devoted little space in his book to the actual development of instruction to present lessons. Butler devoted about four pages. This was typical of the textbooks written about teaching at the time.

Vocational educators viewed these evolving developments in instructional design and adopted portions of the systems approach. For example, they adopted the "task analysis in place of "trade and job analysis. Whereas trade and job analysis broke occupations into jobs performed by people in the occupations, and then into operations; task analysis broke occupations into duties, and duties into tasks. Tasks were then broken down into activities, and activities were broken down into actions or manipulations. "Actions or manipulations (were) defined (as) short, simple operations that are frequently common to many different activities and involve using tools, devices, controls, and simple test equipment." (Butler, 1972, p. 74)

In the final analysis, tasks were still perceived to be psychomotor in nature, and knowledge taught was still viewed as knowledge supporting those tasks. Although the instructional planning process had gone through many modifications, the end goal of the process was essentially the same, but the terminology was different. People talked about the cognitive and affective domains of human behavior, but in vocational education they were still treated as auxiliary to psychomotor behaviors. Occupations were still analyzed in terms of psychomotor behaviors, which is what Allen had proposed during the early 1900s.

However, the systems approach did refine the analysis process, introduce the concept of performance objectives, and

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highlight the need for testing the performance capability of learners. Testing became a critical ingredient in the instructional process and the informality of evaluation procedures proposed by Fryklund and others earlier was no longer accepted.

In 1975, Pucel and Knaak wrote the book Individualizing Vocational and Technical Instruction. In that book they brought together the concepts of mastery learning as proposed by John B. Carroll (1963), the systems approach, and criterion evaluation as proposed by Popham and others (1971). The result was a systematic approach for designing, delivering and evaluating individualized instruction focused on task mastery. The book was based on five years of curriculum model development and experimentation at the 916 Area Vocational-Technical Institute at White Bear Lake, Minnesota. It provided detailed information on how to analyze content using task analysis, the logic of mastery learning applied to vocational education, techniques for developing individualized learning materials, and detailed procedures for developing criterion tests (including manipulative performance and product evaluations). However, it, as other books of its time, did not spend a great deal of time on how instruction should be structured for actual presentation and delivery to learners.

Since 1975, the term competency-based education has evolved as the predominant term to describe the type of education being used in vocational education and training. In most applications, it is essentially the same as what Pucel and Knaak defined as

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individualized instruction. It is self-paced instruction aimed at the mastery of a task with criterion measures to verify task mastery. Tasks are typically defined in terms of the psychomotor aspects of an occupation or job.

The evolution of instructional design procedures since the turn of the century has been refinements of the techniques for accomplishing these basic premises concerning how one prepares people for occupations. The primary focus has been on doing a better job of analyzing the psychomotor aspects of occupations so that the occupational tasks can be defined more accurately, and on developing procedures for measuring whether learners have developed those psychomotor aspects. A recent publication of the State of Florida defining competency-based vocational education reinforces this continued focus.

> Competency-based vocational education (CBVE) focuses on the occupational skills ("competencies") trainees are expected to achieve, and the performances of those competencies...Competencies are those observable skills incumbent workers use on the job - the things they actually get paid to do. Knowledge and attitudes are considered to be integral to the occupational competencies to which they are related, not separate entities, and are taught and learned as such. (Florida, 1985, pp. 5-6)

It is obvious that, given this definition, CBVE again concentrates on the psychomotor aspects of an occupation as the primary focus of analysis, and therefore, instruction. Little is said about how to deliver the instruction; in fact instructional design for delivery is viewed as being of minimal concern. The teaching of knowledge and attitudes are viewed as auxiliary to the psychomotor activity.

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The Next Generation

As the societal change from the agricultural age to the industrial age required changes in the ways in which people were prepared for occupations, the current change from the industrial age to the information age is also requiring changes in the way people are prepared. What vocational educators and industrial trainers have done in the past is not wrong, but it is no longer sufficient. Occupations in society have evolved to requiring larger and larger amounts of occupationally specific cognitive and occupationally specific affective behaviors. These behaviors are not just supportive to psychomotor behavior, but they have become the central core of many occupations.

Data projections contained in The Occupational Outlook Handbook (Bureau of Labor Statistics, 1986) show that although the absolute number of american jobs involved with the production of goods will remain relatively stable, the proportion of jobs involved with the production of goods will decrease substantially. In contrast, the numbers of service producing jobs will increase dramatically. It is projected that service-producing industries will account for 9 out of 10 new jobs between 1984 and 1995. Within the service producing industries the percentage of professional, managerial, sales and administrative support jobs will be much higher than in goods producing industries. For example, the percentage of such jobs in manufacturing industries is about 31% as contrasted with 89% in service producing industries such as finance, insurance and real estate.

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These evolving occupations require different types of skills. They require fewer psychomotor skills and large amounts of affective and cognitive skills in order for people to succeed. People must be able to effectively interact with the people for whom they provide service. Even those occupations which require predominantly psychomotor activity are requiring participatory management involvement of workers which makes the development of affective behaviors such as cooperation extremely important.

Decision-making and the processing of information to achieve productive goals is also becoming a major portion of many occupations. Such cognitive skills often have minimal psychomotor components. Instead of being auxiliary to psychomotor behaviors, they become the primary focus of instruction. For example, deciding which hydraulic pump to use in a hydraulic system or the amount of salary increase for employees are primarily cognitive behaviors. Basing instruction for these behaviors on a psychomotor analysis does not make sense.

The underlying assumptions of what constitutes productivity in industry, which were in place during the industrial age, are being questioned. Those underlying assumptions are well stated by Paul Strassmann (1985) as follows.

> The underlying assumptions about what "productivity" is go back to the industrial-age model of what a person, aided by a machine, does. (They were that) ...the handling of complexity requires information which is a manager's, not a worker's, prerogative. A person's superior coordination of eye and hand are what wages will purchase--until improved machines buy it for less. A person's brain is not a valuable asset per se under such assumptions, because the engineer designs into the manufacturing sequence everything which needs to be done. The employee's thinking is only useful insofar as it retains simple procedural instructions. (pp. 103-104)

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Strassmann's position may be a little harsh, but it provides a frame of reference which is compatible with past instructional design procedures in vocational education and the focus almost solely on the psychomotor aspects of occupations.

We still need people in society who can operate machines and manipulate objects and tools, and that should still be a major focus of vocational education. However, as was pointed out that is no longer sufficient. In order to prepare people for employment during the information age, vocational educators and industrial trainers must incorporate the teaching of occupationally related affective and cognitive skills into instructional programs with the same level of planning, precision, and commitment as they have devoted to psychomotor skills.

It is time to acquire a new framework for the development of training programs. One that accepts cognitive and affective behaviors on an equal par with psychomotor behaviors. All three must still be occupationally related, so the instruction is focused and functional, but each must be recognized as having value in and of itself. The new approach should be founded upon the sound procedures which have been developed to create competency-based training programs. Those procedures do not need to be rejected, they only require adaptation in order to make them applicable to teaching both cognitive and affective behaviors. The following discussion will present how those procedures can be adapted to teaching affective behaviors using

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the Performance-Based Instructional Design System (PBID) (Pucel, 1986). Although the discussion will focus on affective behavior development, the PBID System is equally applicable to cognitive behavior development.

Developing Performance-Based Affective Instruction

The instructional planning and delivery techniques which have been used to teach psychomotor behaviors can be equally applicable to the teaching of affective behaviors. The key is to demystify the teaching of affective behaviors in the same way the teaching of psychomotor behaviors has been demystified through the development of the instructional planning and delivery procedures presented above.

Listed below are definitions of each of these types of behaviors.

1. Psychomotor (doing) behaviors involve visible physical manipulations.
2. Affective (feeling) behaviors involve visible actions that communicate emotional tones.

Whereas psychomotor behaviors concentrate on the procedure for physically manipulating things in order to accomplish a task; affective behaviors (emotional tones) are exhibited through body language, verbal communication and actions during the performance of psychomotor or cognitive behaviors. They rarely stand alone. For example, in order for a person to perform as an auto mechanic, the person must:

1. decide what to repair (cognitive behavior),
2. repair automobile (psychomotor behavior),
3. and relate to people and things (customers, co-workers, supervisors, parts, equipment) while deciding and repairing (affective behavior).

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In other words, affective behaviors are exhibited within a context. That context is usually the context of performing cognitive or psychomotor behaviors. In vocational education or industrial training, the context is the performance of cognitive or psychomotor behaviors associated with a job or a cluster of jobs. That is not to say that every cognitive or psychomotor behavior has an associated affective behavior. Some may and some may not. Also, some affective behaviors may relate to groupings of cognitive and affective behaviors. Therefore, affective behaviors are not taught as auxiliary to psychomotor or cognitive behaviors, but within their context.

Identifying Job-Related Affective Behaviors

What is a behavior? A behavior is a visible action of an individual. For example, a person can replace a light bulb, solve a problem, blink an eye, display acceptance of another person, or cooperate with co-workers. Just as we identify job-related psychomotor behaviors by conducting a job analysis to determine what behaviors a qualified person in an occupation needs to be able to perform, it is also possible to identify job-related affective behaviors that are required in order for a person to succeed in the occupation through a job analysis. The resulting job-related affective behaviors are the legitimate content to be taught by vocational educators and industrial trainers as they prepare people for careers and occupations. They warrant the same quality of instructional planning and delivery as are afforded psychomotor behaviors. The test of whether an affective behavior is job-related is if its absence

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inhibits a person from being employed in the job or from maintaining employment in the job. If an affective behavior can pass this test and is verified by a qualified advisory committee, it should be treated as legitimate content for the instructional program along with the psychomotor tasks which have also been verified.

It is important to recognize that just as a psychomotor behavior that is related to one job might not be job-related to another job, an affective behavior that is job-related to one job may not be job-related to another job. For example, the ability to arc weld is a job-related behavior for a welder but not for a child development assistant. On the other hand, a person's affective behavior toward children is job-related to a child development assistant and not job-related to a welder.

It is just as possible to identify job-related affective behaviors as it is to identify job-related psychomotor behaviors. Table 1 presents a typical job analysis chart for identifying psychomotor behaviors relative to auto mechanics. Listed across the top of the chart are some major functions (duties) associated with the occupation, and listed down the left-hand side of the chart are the psychomotor behaviors (tasks). The X's in the chart indicate which behaviors pertain to which functions.

The analysis of affective behaviors is done in relation to functions as is the analysis of psychomotor behaviors. The technique of analyzing affective behaviors in relation to functions verifies that the affective behaviors identified are job-related. If an affective behavior cannot be related to one of the functions to be taught within an instructional program, it

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Table 1

Sample Automechanic Analysis Chart
(Psychomotor Behaviors)

(tasks) PSYCHOMOTOR BEHAVIORS	FUNCTIONS (duties) Perform maintenance	Read technical manuals	Record costs	Run customer test drive
Change a tire	X			
Check and add oil	X			
Drain coolant		X		

is not job-related. Table 2 presents a sample analysis of affective behaviors for automechanics.

Table 2

Sample Automechanic Analysis Chart
(Affective Behaviors)

AFFECTIVE BEHAVIORS	FUNCTIONS (duties) Perform maintenance	Read technical manuals	Record costs	Run customer test drive
Treat tools carefully	X	X		
Cooperate with co-workers	x	X	X	

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Notice that it is possible to state affective behaviors in what is typically considered to be a "task" format. That format includes an action verb, what is acted upon, plus any modifying information that might be necessary for clarification.

Identifying Specific Affective Content To Be Taught

Once the behaviors to be developed have been identified, the specific content that an instructor must teach in order for a learner to acquire those behaviors must be identified through behavior detailing. When teaching psychomotor behaviors, vocational educators and industrial trainers typically detail each of the behaviors into "doing" and "knowing" content. Those techniques are transferable to the analysis of affective behaviors.

The PBID System refers to the "doing" content as "process", and the "knowing" content as the "knowledge-base." These terms are adopted because they apply equally to psychomotor, cognitive and affective behaviors. Each type of behavior can be analyzed into: (a) the process of applying the behavior, and (b) the knowledge-base needed to meaningfully apply the behavior.

Table 3 presents the detailing of the psychomotor behavior "change a tire." Notice that the process is listed as a series of procedural steps. Table 4 presents the detailing of the affective behavior "cooperate with co-workers." Notice that the process is listed as actions because they could be performed in any order. The reason for this is that although the performance of most psychomotor behaviors requires actions that are performed in an established sequence which might be called a procedure,

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Table 3

Sample Psychomotor Behavior Detailing

Behavior: Change a tire

PROCESS (procedure)	KNOWLEDGE-BASE
1. Block the tires	1. Recall safety precautions
2. Position the jack	2. Recall procedures for lifting heavy objects
3. Remove the hubcap	3. Explain the procedure for changing a tire
4. Loosen the lug nuts	
5. Jack the car	
6. Remove the lug nuts	
(etc.)	

Table 4

Sample Affective Behavior Detailing

Behavior: Cooperate with co-workers

PROCESS (actions)	KNOWLEDGE-BASE
1. Listen to co-workers	1. Explain the benefits of cooperation
2. Communicate with co-workers	2.Differentiate between assisting and taking over
3. Assist others when asked	
4. Compromise	
(etc.)	

many affective behaviors are performed through actions that do not necessarily have to be performed in a given order. Therefore, they are often not procedural steps but a set of actions that should be performed, but not necessarily in order.

Once the process for performing a behavior has been identified, the knowledge-base that a person "needs to know" in order to perform and/or apply the behavior must be identified.

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Vocational educators have tended to call this the "knowing" content which supports the "doing" content. It usually takes the form of technical information, theory or background knowledge. Just as one can identify a knowledge-base that supports a psychomotor behavior process, it is also possible to identify a knowledge-base that supports the actions related to an affective behavior. Tables 3 and 4 also provide examples of the knowledge-base that could be used to support the psychomotor behavior "change a tire" and the affective behavior "cooperate with co-workers."

So far, we have seen that it is equally as possible to identify affective behaviors as it is to identify psychomotor behaviors. Also, it is equally as possible to identify teachable content relative to affective behaviors as it is to identify teachable content for psychomotor behaviors. Vocational educators and industrial trainers have utilized these techniques for years, but have not often applied them to the affective domain.

Once the behaviors and the content to be taught relative to those behaviors have been identified, how the behavior will be taught must be planned. The Performance-Based Instructional Design System contains a lesson structuring (planning) system that is equally applicable to the psychomotor and affective behaviors.

Lesson structuring includes the following seven steps.

1. State the behavioral objective
2. Determine the lesson flow
3. Specify the content to be taught
4. Select instructional methods

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5. Select instructional media
6. Select evaluation procedures
7. Select feedback procedures

This presentation will concentrate on the second step of performance-based lesson planning or "the lesson flow." The following is the "eight-step lesson flow."

1. State the objective
2. Tell the learner why it is important to learn the behavior
3. Provide the learner with "need to know" information
4. Demonstrate how to perform the behavior
5. Let the learner practice the behavior with guidance
6. Allow the learner to practice without guidance to perfect the behavior
7. Evaluate learner performance of the behavior and understanding of the related knowledge
8. Provide the learner with feedback and direction about what to do next

Table 5 presents a sample performance-based lesson flow for the psychomotor behavior "change a tire." Table 6 presents a sample performance-based lesson flow for the affective behavior "cooperate with co-workers." Notice that it is equally possible to develop a performance-based lesson plan focused on developing performance capability for both psychomotor and affective behaviors.

Once the affective behavior process (actions) and the knowledge-base supporting the application of those actions are identified, it is possible to teach the affective behaviors in ways similar to those used to teach psychomotor behaviors.

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Table 5

Sample Lesson Structuring Worksheet
(Psychomotor Example)

OBJECTIVE:
Givens: a car with a flat tire at the side of a road, tools and a replacement tire
Behavior: change a tire
Standard: the replacement tire is mounted on the car, the tools and replacement tire are stored

LESSON STAGE	CONTENT TO BE TAUGHT, PRACTICED, OR EVALUATED	METHODS/MEDIA (CONSISTENT WITH DELIVERY FORMAT)
WHY LEARN IT	a. consequences of trying to drive on a flat tire b. consequences of being stranded c. money savings	lecture/video tape
BACKGROUND INFORMATION	a. the step-by-step procedure for changing a tire b. safety precautions c. lifting heavy objects	reading/textbook; questioning/ instructor
DEMONSTRATION	procedure for changing a tire	demonstration/live instructor; questioning/instructor
GUIDED PRACTICE	procedure for changing a tire	practice/procedure sheet; observation/ instructor
PRACTICE FOR PERFECTION	procedure for changing a tire	practice/procedure sheet
EVALUATION	a. knowledge-base presented above b. procedure for changing a tire	a. test/written b. product test/ checklist
FEEDBACK	a. knowledge base presented above b. procedure for changing a tire	conference/instructor, test instruments

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Table 6

Sample Lesson Structuring Worksheet
(Affective Example)

OBJECTIVE:
Givens: a co-worker and a situation requiring cooperation
Behavior: cooperate with co-worker
Standard: as specified on the affective checklist

LESSON STAGE	CONTENT TO BE TAUGHT, PRACTICED, OR EVALUATED	METHODS/MEDIA (CONSISTENT WITH DELIVERY FORMAT)
WHY LEARN IT	the benefits of cooperation	lecture/instructor
BACKGROUND INFORMATION	a. types of actions that convey cooperation vs. non-cooperation b. differences between assisting and taking over	reading/textbook; questioning/ instructor
DEMONSTRATION	cooperative actions	demonstration/video tape
GUIDED PRACTICE	cooperative actions	role playing/script; observation/ instructor
PRACTICE FOR PERFECTION	cooperative actions	role playing/script; observation/another student
EVALUATION	a. knowledge-base presented above b. cooperative actions	a. test/written b. performance test/ checklist
FEEDBACK	a. knowledge-base presented above b. cooperative actions	conference/instructor, test instruments

In the past, many educators who have attempted to teach affective behaviors have dealt with only stages 2 and 3 of the

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performance-based lesson flow. Those steps concentrate on why the affective behavior is important and some "need to know" information about the affective behavior. In other words, they just talked about the affective behaviors. What is needed, if learners are expected to actually develop affective behaviors, are the key components of lesson plans used by vocational educators and industrial trainers that have made their teaching methods successful in teaching people to perform. Those key components should not only include talking about why a behavior is important and providing "need to know" information. They must also include the other stages of a performance-based lesson: demonstrating the behavior and providing opportunities for learners to actually practice the behavior under the guidance of a qualified instructor, and then diagnostically evaluating the learners' performance and providing the learners with feedback to allow them to perfect that performance.

If the process and knowledge-base associated with an affective behavior are identified and taught as indicated above, it is not only possible to talk about the affective behavior, but to provide demonstrations of actions which depict the affective behavior and to develop learning activities through which learners can practice it. Instructional techniques such as simulation and role playing work well in order to have learners actually practice such behaviors.

Clear specification of the expected affective behavior also allows for diagnostic evaluation of learners relative to those actions and the knowledge base. Typical written tests can be

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used to evaluate the knowledge-base associated with affective behaviors, just as they are used to evaluate knowledge related to psychomotor behaviors. Performance checklists, which focus on the process of performing an affective behavior, can be developed in the same way that performance checklists can be developed for psychomotor behaviors. These checklists can be used to evaluate the performance of the behaviors.

Table 7 presents a sample psychomotor process checklist and Table 8 presents a sample affective process checklist. Notice that the same performance checklist structure can be used to evaluate both.

Table 7

Sample Psychomotor Process Checklist

OBJECTIVE: Givens: A car with a flat tire at the side of the road, tools and replacement tire
Behavior: Change a tire
Standard: Score of 12 on the process checklist

PROCEDURE	SAT.	UNSAT.	CRITERIA
1. Block the tires	1	0	Blocks placed in front and back of tires not to be raised
2. Position the jack	1	0	Under jack-point as in manual
3. Remove the hubcap	1	0	Hubcap removed from rim
4. Loosen the lug nuts	1	0	Lug nuts loosened 1/4 turn
5. Etc.			

TOTAL SCORE _____

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Table 8

Sample Affective Process Checklist

OBJECTIVE: Givens: A task to perform, other people with whom to perform the task
Behavior: Cooperate with co-workers
Standard: Score of 15 on the process checklist

ACTIONS	SAT.	UNSAT.	CRITERIA
1. Listen to co-workers	1	0	Repeats what others say, incorporates what others say in own conversation
2. Communicate with co-workers	1	0	Talks to others, uses terms which others understand
3. Assist others when asked	1	0	When others ask for assistance the person helps
4. Compromise	1	0	Agrees with the majority if there is not one correct way to do the task
5. Etc.			

TOTAL SCORE _____

Another Example

The sample affective behavior detailing discussed above (cooperate with co-workers) contained relatively large complex actions to define the expected affective behavior. This may be done if it can be assumed that people comprehend the concepts of assisting, compromising, etc. However, at times the need arises to teach much more precise actions which convey emotional tones. That is the case in the following example of the behavior "accept a customer as an individual." In this example the goal is to teach people how to convey to customers that they accept the customers as individuals so that the customers feel comfortable during the selling process. Table 9 presents the behavior

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Table 9

Sample Affective Behavior Detailing

Behavior: Accept the customer as an individual

PROCESS (actions)	KNOWLEDGE-BASE
1. Smile	1. Explain the benefits customer comfort
2. Control voice volume	2.Contrast the impact of words and voice volume upon customers
3. Select words	3. Recall the effects of physical distance on customer comfort
4. Compromise	
5. Position body	
6. Maintain eye contact	

detailing of this behavior. This example presents many more finite actions which convey emotional tones.

Table 10 presents a lesson structure for organizing the presentation of the lesson for the behavior "accept the customer as an individual." Table 11 presents an affective checklist for this behavior. Notice that in addition to the actions being more precise, the criteria which define acceptable behavior regarding each action are also more precise.

Summary

The instructional development and delivery techniques which vocational educators and industrial trainers have developed have evolved from improved ways of teaching psychomotor behaviors (tasks) that were essential during the industrial age. Competency-based vocational education and industrial training procedures are the result of an evolutionary process of improving these techniques.

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Table 10

Sample Lesson Structuring Worksheet
(Affective Example)

OBJECTIVE:
Givens: a co-worker and a situation requiring cooperation
Behavior: accept the customer as an individual
Standard: as specified on the affective checklist

LESSON STAGE	CONTENT TO BE TAUGHT, PRACTICED, OR EVALUATED	METHODS/MEDIA (CONSISTENT WITH DELIVERY FORMAT)
WHY LEARN IT	the benefits customers feeling comfortable	lecture/instructor
BACKGROUND INFORMATION	a. types of actions that convey acceptance vs. non-acceptance b. physical distance and individual comfort	reading/textbook; questioning/ instructor
DEMONSTRATION	accepting actions	demonstration/video tape
GUIDED PRACTICE	accepting actions	role playing/script; observation/ instructor
PRACTICE FOR PERFECTION	accepting actions	role playing/script; observation/another student
EVALUATION	a. knowledge-base presented above b. accepting actions	a. test/written b. performance test/ checklist
FEEDBACK	a. knowledge-base presented above b. accepting actions	conference/instructor, test instruments

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Table 11

Sample Affective Checklist

Objective:
Given: A situation in which a person is selling something to a customer, and a customer
Behavior: Accept the customer as an individual
Standard: Score of 6 on the affective checklist

ACTIONS	SAT.	UNSAT.	CRITERIA
1. Smile	1	0	standard smile as indicated on reference chart 1
2. Control voice volume	1	0	normal conversational volume, similar to that used by customer
3. Select words	1	0	approximately 9th grade level as indicated in reference list
4. Compromise	1	0	Agrees with the customer if the customer's views are also correct
5. Position body	1	0	a. face the customer at least 90% of the time
	1	0	b. stand or sit erect
6. Maintain eye contact	1	0	look customer in the eye at least 80% of the time

Total Score _____

Society has now changed from the industrial age to the information age with large numbers of service occupations. There is still a need to teach psychomotor procedures which were the basic components of occupations of the industrial age, but there is an increasing need to teach the cognitive behaviors and affective behaviors associated with information processing and service related occupations. The techniques which have worked well to teach psychomotor behaviors can and should be modified to embrace the teaching of occupationally related cognitive and affective behaviors. This paper presented how solid competency-

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based procedures can be adapted to teach affective behaviors.

In light of the critical role of affective behaviors in the employability of people, we should take the techniques that we as vocational educators and industrial trainers have already mastered and apply them to this critical area to increase the employability of the learners we serve.

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